

Idaho Falls Subbasin Assessment and Total Maximum Daily Load



Diversion structure at Dry Bed along the South Fork Snake River, DEQ file photo

Final



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Abbreviations, Acronyms, and Symbols

§303(d)	Refers to section 303 subsection (d) of the Clean Water Act, or a list of impaired waterbodies required by this section	CWAL	cold water aquatic life
μ	micro, one-one thousandth	DEQ	Department of Environmental Quality
§	Section (usually a section of federal or state rules or statutes)	DO	dissolved oxygen
ADB	assessment database	DOI	U.S. Department of the Interior
AWS	agricultural water supply	DWS	domestic water supply
BAG	Basin Advisory Group	EPA	United States Environmental Protection Agency
BLM	United States Bureau of Land Management	ESA	Endangered Species Act
BMP	best management practice	F	Fahrenheit
BOD	biochemical oxygen demand	FWS	U.S. Fish and Wildlife Service
BOR	United States Bureau of Reclamation	GIS	Geographical Information Systems
BURP	Beneficial Use Reconnaissance Program	HUC	Hydrologic Unit Code
C	Celsius	I.C.	Idaho Code
CFR	Code of Federal Regulations (refers to citations in the federal administrative rules)	IDAPA	Refers to citations of Idaho administrative rules
cfs	cubic feet per second	IDFG	Idaho Department of Fish and Game
cm	centimeters	IDL	Idaho Department of Lands
CWA	Clean Water Act	IDWR	Idaho Department of Water Resources
		km	kilometer
		km²	square kilometer
		LA	load allocation

LC	load capacity	ppm	part(s) per million
m	meter	QA	quality assurance
m³	cubic meter	QC	quality control
mi	mile	RFI	DEQ's river fish index
mi²	square miles	RHCA	riparian habitat conservation area
MBI	macroinvertebrate index	RMI	DEQ's river macroinvertebrate index
MGD	million gallons per day	RPI	DEQ's river physiochemical index
mg/L	milligrams per liter	SBA	subbasin assessment
mm	millimeter	SCR	secondary contact recreation
MOS	margin of safety	SFI	DEQ's stream fish index
MRCL	multiresolution land cover	SHI	DEQ's stream habitat index
MWMT	maximum weekly maximum temperature	SMI	DEQ's stream macroinvertebrate index
n.a.	not applicable	SS	salmonid spawning
NA	not assessed	STATSGO	State Soil Geographic Database
NB	natural background	TDS	total dissolved solids
nd	no data (data not available)	T&E	threatened and/or endangered species
NFS	not fully supporting	TIN	total inorganic nitrogen
NPDES	National Pollutant Discharge Elimination System	TKN	total Kjeldahl nitrogen
NRCS	Natural Resources Conservation Service	TMDL	total maximum daily load
NTU	nephelometric turbidity unit	TP	total phosphorus
PCR	primary contact recreation		
PFC	proper functioning condition		

TS	total solids
TSS	total suspended solids
t/y	tons per year
U.S.	United States
U.S.C.	United States Code
USDA	United States Department of Agriculture
USDI	United States Department of the Interior
USFS	United States Forest Service
USGS	United States Geological Survey
WAG	Watershed Advisory Group
WBAG	<i>Waterbody Assessment Guidance</i>
WBID	waterbody identification number
WET	whole effluence toxicity
WLA	wasteload allocation
WQLS	water quality limited segment
WQMP	water quality management plan
WQRP	water quality restoration plan
WQS	water quality standard

Executive Summary

The federal Clean Water Act (CWA) requires that states and tribes restore and maintain the chemical, physical, and biological integrity of the nation's waters. States and tribes, pursuant to Section 303 of the CWA are to adopt water quality standards necessary to protect fish, shellfish, and wildlife while providing for recreation in and on the waters whenever possible. Section 303(d) of the CWA establishes requirements for states and tribes to identify and prioritize waterbodies that are water quality limited (i.e., waterbodies that do not meet water quality standards). States and tribes must periodically publish a priority list of impaired waters, currently every two years. For waters identified on this list, states and tribes must develop a total maximum daily load (TMDL) for the pollutants, set at a level to achieve water quality standards. This document addresses the waterbodies in the Idaho Falls Subbasin that have been placed on what is known as the "§303(d) list."

This subbasin assessment and TMDL analysis has been developed to comply with Idaho's TMDL schedule. This assessment describes the physical, biological, and cultural setting; water quality status; pollutant sources; and recent pollution control actions in the Idaho Falls Subbasin located in southeast Idaho. The first part of this document, the subbasin assessment, is an important first step in leading to the TMDL. The starting point for this assessment was Idaho's current §303(d) list of water quality limited waterbodies. Three segments of the Idaho Falls Subbasin were listed on this list. The subbasin assessment portion of this document examines the current status of §303(d) listed waters, and defines the extent of impairment and causes of water quality limitation throughout the subbasin. The loading analysis quantifies pollutant sources and allocates responsibility for load reductions needed to return listed waters to a condition of meeting water quality standards.

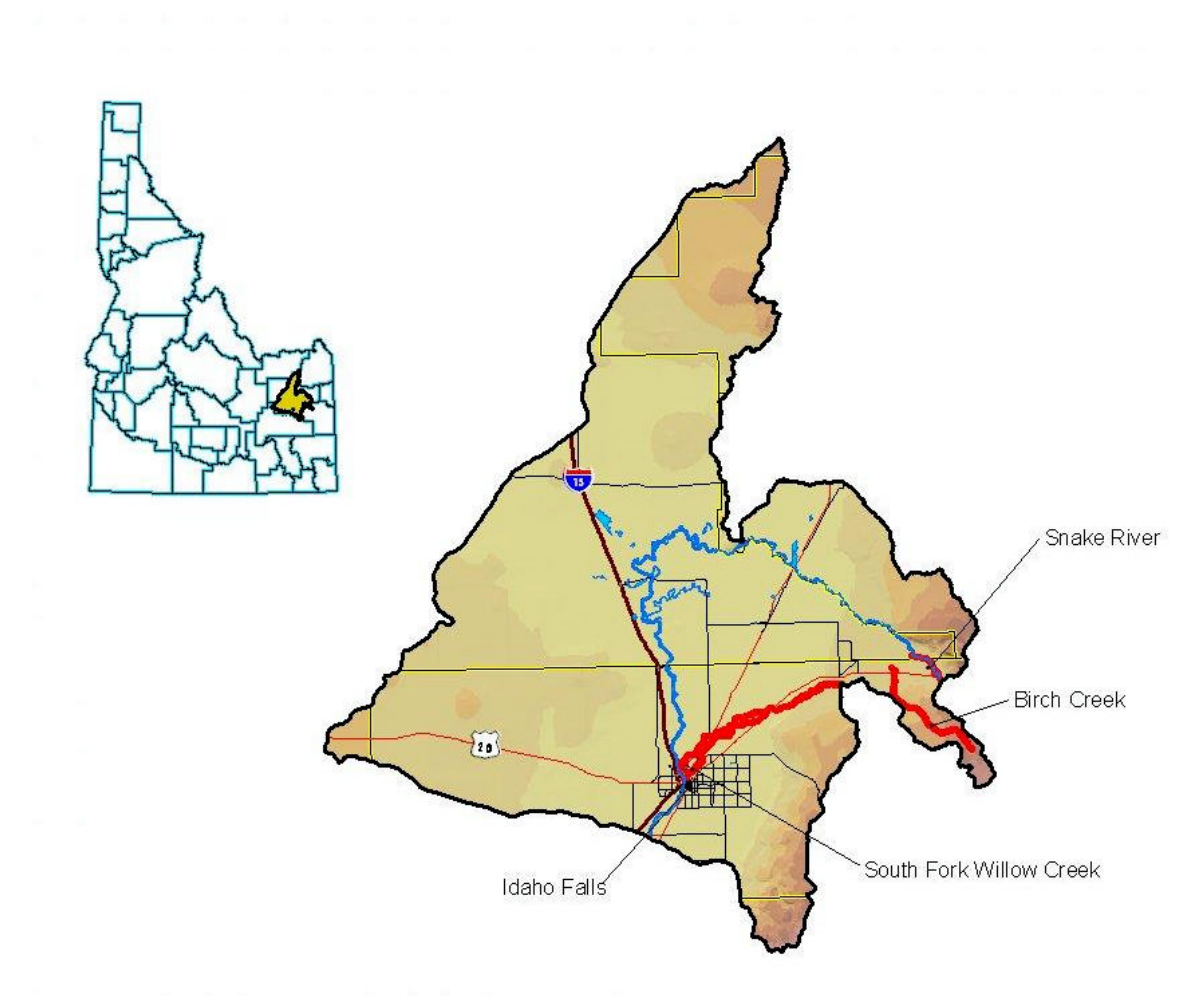
Key Findings

The hydrology of the Idaho Falls subbasin is dominated by the Snake River and its associated diversion structures for irrigation of farmland on the Snake River plain. A small section of the South Fork Snake River at the eastern most border of the subbasin is 303(d) listed for flow alteration. Flow in the South Fork Snake River is controlled upstream of this subbasin by the Palisades Reservoir. Additionally, there are numerous diversion structures in this reach as well as elsewhere on the Snake River in this subbasin. Because flow alteration is not a pollutant that renders itself to total maximum daily load calculations, no TMDL has been completed for the South Fork Snake River, but it is recommended that this stream reach remain on the 303d list for flow alteration.

The South Fork Willow Creek has been 303(d) listed for sediment; however, this stream no longer exists as a natural watercourse. Since the construction of Ririe Dam in the 1970's the flow in the Willow Creek/Sand Creek complex has been controlled for irrigation. Willow Creek, including both the North Fork and the South Fork have been converted to canal conveyance structures with straightened channels and riprap style bank reinforcement. No water flows in these channels during the non-irrigation season. Therefore, it is recommended that South Fork Willow Creek be "delisted" from the 303(d) list.

Birch Creek was added to the 1998 303(d) list from unknown pollutants by DEQ. A subsequent inspection of the water body revealed that the primary water quality problem is likely sediment from bank erosion. Birch Creek is in a predominantly dryland agricultural region where it is constrained between a road and agricultural fields. No data was available for Birch Creek; hence a TMDL for sediment was constructed by using the adjacent Antelope Creek TMDL as a proxy. Because of similar geology, soils and land use, loading analysis from Antelope Creek will suffice until such time that erosion surveys can be completed for Birch Creek.

Figure A. Subbasin-at-a-glance - Idaho Falls Subbasin (17040201)



303(d) listed streams

Birch Creek
South Fork Snake River
South Fork Willow Creek

Pollutants

Sediment
Flow Alteration

Beneficial Uses of Concern

Cold Water Aquatic Life
Salmonid Spawning

Table A. Streams and pollutants for which TMDLs were developed.

Stream	Pollutant(s)
Birch Creek	Sediment

Table B. Summary of assessment outcomes.

Waterbody Segment	Assessment Unit of HUC 17040201	Pollutant	TMDL(s) Completed	Recommended Changes to §303(d) List	Justification
Snake River	SK013_06	Flow	No	List as Flow Alteration	Flow altered
SF Willow Cr. (includes NF and Willow Creek to Eagle Rock canal)	SK001_05 SK002_02 SK002_05 SK003_05	Sediment	No	De-list	Canal
Birch Creek	SK008_02 SK008_03	Sediment	Yes	none	TMDL developed

